REMARKS

Claims 1-119 are pending in the above-identified reissue application, claims 13-119 having been added by this reissue amendment.

Pursuant to 37 C.F.R. § 1.173(c), the following is a statement as to the status of all patent claims and all added claims.

Claims 1-12 were present in the originally-issued patent and are currently pending in the reissued application. Claim 1 is amended; claims 2-12 are unchanged from the originally-issued patent. Claims 13-119 have been added in this reissue application and are presented in this reissue amendment.

Pursuant to 37 C.F.R. § 1.173(c), the following is an explanation as to the support in the disclosure for any concurrently made changes to the claims.

Claim 1 is amended to change the following: The reference to "the positive air flow generator" to read the continuous air flow generator. The reference to "the frequency" is changed to "a frequency." The reference to "the peak pressure" is changed to "a peak pressure."

This claim is supported by the specification as filed and introduces no new matter.

The following discussion indicates the existence of support for the newly added reissue claims. Reference to the specification is reference to the originally-filed specification submitted with the original application.

Claim 13 is substantially similar to claim 1, except that it recites a "positive air flow generator" in place of each instance of "continuous air flow generator." Support for this change is found at page 6, line 6 of the originally filed specification, which recites "positive air

flow generator 16." This feature is also shown in Figure 3, which depicts a block diagram of generator 4.

Claim 14 is substantially similar to claim 13, except that it recites the second feedback and control means as "dynamically adjusting an output pressure of the positive air flow generator." Support for this limitation is found at page 11, lines 5-6 of the originally filed specification, which recite that "positive air flow generator 16 dynamically adjusts the peak pressure in air chamber 17."

Claim 15 recites that the positive pressure is consistent. This limitation is found at page 11, lines 6-7 of the originally filed specification.

Claim 16 recites that the positive pressure is constant. This limitation is found at page 11, lines 10-11 of the originally filed specification.

Claim 17 recites that the second feedback and control means is "for maintaining a positive pressure at a predetermined value." Support for this limitation is found at page 11, lines 4-11 of the original specification.

Claims 18-19 are supported at page 11, lines 6-7 and 10-11 of the original specification; the limitations recited are the same as those of claims 15-16.

Claim 20 recites "a frequency-compensation feedback system operably connected with the oscillatory air flow generator" and a "pressure-compensation feedback system operably connected with the positive air flow generator." Support for these elements is found in Figure 3 and at page 10, lines 12-14 of the original specification.

Claims 21-22 are supported at page 11, lines 6-7 and 10-11 of the original specification; the limitations recited are the same as those of claims 15-16.

Claim 23 recites dynamic adjustment, as supported at page 11, lines 5-6 of the original specification.

Claim 24 recites that "the pressure-compensation feedback system maintains a peak pressure," as supported at page 11, lines 10-11 of the original specification.

Claim 25 recites that "the pressure-compensation feedback system maintains the positive pressure by flowing air from the apparatus." Support for this limitation is found at page 10, line 31 to page 11, line 2 of the specification.

Claim 26 recites that "the pressure-compensation feedback system dynamically adjusts the positive air flow generator to maintain the positive pressure at the predetermined value." Support for this limitation is found at page 11, lines 5-6 of the specification.

Claim 27 recites speed adjustment, as found at page 10, lines 8-10 of the specification.

Claim 28 recites output pressure adjustment, as found at page 10, line 11 of the specification.

Claim 29 recites output flow adjustment, as supported by the specification at page 10, lines 5-7 of the specification.

Claim 30 recites dynamic adjustment by flowing air from the generator. This is supported at page 10, line 31 to page 11, line 2 of the specification.

Claim 31 recites continuous variation of the output pressure. This variation is inherent in the operation of the feedback system as described at page 10, lines 12-28, which recite continuous variation of the voltage output of difference amplifier 52.

Claim 32 is equivalent to claim 20, except that the rod and crankshaft of claim 20 are not included. These features are details of the oscillatory air flow generator, which is described generally at page 6, lines 7-11 of the specification.

Claim 33 recites dynamic adjustment, as in claim 26; support for this limitation is found at page 11, lines 5-6 of the specification.

Claim 34 recites a shaft in connection with the diaphragm. Support for this limitation is found at page 7, line 6 of the specification.

Claim 35 recites rotation of the shaft to reciprocate the reciprocating diaphragm. This is supported by page 7, lines 7-9 of the specification.

Claim 36 recites "the reciprocating diaphragm causes pressure changes inside the air chamber in comparison to ambient pressure." This is supported by page 7, line 10 of the specification.

Claim 37 recites that the pressure changes are relatively small, as recited at page 7, lines 11-12 of the originally filed specification.

Claim 38 recites that the pressure changes are less than 1 psi, as recited at page 7, lines 11-12 of the originally filed specification.

Claim 39 recites that "a majority of the fixed volume of air is moved into and out of the bladder during each cycle." This is supported at page 10, lines 14-15 of the specification.

Claim 40 recites the seal as recited at page 6, line 11 of the original specification.

Claims 41-42 recite the rod and crankshaft assembly as recited at page 7, lines 5-6 of the original specification.

Claim 43 recites the generally orthogonal relationship between the rod and crankshaft, as shown in Figure 3, reference numerals 33 and 34.

Claim 44 is substantially similar to claim 32, except that it recites a single generator providing "a positive pressure" and "an oscillatory pressure." These functions are the same as those of claim 32 and the claim is supported by the same disclosure as is claim 32, as well as at page 2, line 26 of the specification, which refers to "a generator."

Claim 45 is again substantially similar to claim 44, except that the generator is recited as "comprising an oscillatory air flow generator and a positive air flow generator." These functions are again the same as those of claim 32 and the claim is supported by the same disclosure as is claim 32, as well as at page 2, line 26 of the specification.

Claim 46 recites that "the apparatus loosens and assists the expulsion of mucus from lungs of the person." This is supported at page 2, lines 23-24 of the specification.

Claim 47 recites that "the oscillating frequency is independent and higher than a breathing rate of the person." This is supported at page 1, lines 31-32, which describe the general operation of a pneumatic system employing air pulses.

Claim 48 recites that "the oscillating frequency is between about 5 Hz to about 25 Hz." This is supported by the specification at page 5, lines 13-14.

Claim 49 recites that "the positive pressure is between about 0.2 psi to about 0.6 psi." This is supported by the specification at page 5, lines 16-17.

Claim 50 recites a user selected pressure setting. This feature is supported by the original specification at page 5, lines 14-16.

Claim 51 recites a user-selected frequency setting. This feature is supported by the original specification at page 5, lines 12-13.

Claims 52-53 are supported at page 11, lines 6-7 and 10-11 of the original specification; the limitations recited are the same as those of claims 15-16.

Claim 54 recites that the pressure-compensation feedback system maintains a pressure in the bladder above ambient pressure. Pressure above ambient pressure is supported at page 11, lines 6-7 and 10-11 and page 7, lines 10-12 of the original specification.

Claim 55 recites that the pressure-compensation feedback system "adjusts the positive pressure to allow repeated inhalation and expiration of the person." This feature is recited in the specification at page 11, lines 9-10.

Claim 56 recites that the pressure-compensation feedback system "maintains the positive pressure irrespective of repeated inhalation and expiration of the person." This feature is again recited in the specification at page 11, lines 9-10.

Claim 57 recites that the pressure-compensation feedback system "varies the positive pressure to maintain a positive pressure at a predetermined value." This feature is recited at the specification at page 10, line 28; a user-selected value is an example of a predetermined value.

Claim 58 recites detection of a peak pressure. This feature is supported at page 10, line 15 of the specification, which recites "pressure peak detector 51."

Claim 59 recites "maintaining the positive pressure throughout a range of oscillation frequencies." This feature is again recited in the specification at page 11, lines 6-10 and also at page 3 lines 5-7.

Claim 60 recites that "the pressure-compensation feedback system maintains the positive pressure at the predetermined value independent of variations of the bladder." This feature is recited in the specification at page 11, line 9 and page 24 lines 24-27.

Claim 61 recites that "the pressure-compensation feedback system detects the positive pressure, compares the positive pressure to a predetermined value, and adjusts the positive pressure to the predetermined value." The operation of the pressure-compensation feedback system is described at page 10, lines 13-28 of the specification.

Claim 62 recites that "the pressure-compensation feedback system is an electrical feedback system." This electrical feedback system is recited at page 10, lines 13-28 of the specification, which describe the components and function of such an electrical feedback system.

Claim 63 recites a pressure transducer in the feedback system. This is supported by the specification at page 10, line 14, which refers to a "pressure transducer 38."

Claim 64 recites that the predetermined value is a user selected value. This feature is recited by the specification at page 10, line 28, which describes a user selected value.

Claim 65 recites that "the pressure-compensation feedback system adjusts the positive pressure by changing an output of the generator." This is supported by the specification at page 10, lines 8-11.

Claim 66 recites that a pressure of the output of the generator can be reduced. This is supported by the specification at page 10, lines 8-11.

Claim 67 recites that a flow of the output of the generator can be reduced. This is again supported at page 10, lines 8-11 of the specification.

Claim 68 recites reduction of the flow of the output by flowing air out of the generator. This is supported at page 10, line 31 to page 11, line 2 of the specification.

Claim 69 recites that "the output of the generator is independent of the oscillation frequency." This is supported by the original specification at page 8, lines 23-26.

Claim 70 recites a detail of the frequency-compensation feedback system, that "the frequency-compensation feedback system detects the oscillation frequency, compares the oscillation frequency to a predetermined value, and adjusts the oscillation frequency to the predetermined value." This is supported by the original specification at page 8, lines 3-21.

Claim 71 recites a further detail of the frequency-compensation feedback system, that the oscillation frequency is detected by detecting the oscillatory pressure. This is supported by the description of the operation of the pressure transducer 43 at page 8, lines 4-6 of the specification.

Claim 72 recites that the oscillation frequency is detected by detecting the motor speed. This is supported by the specification at page 7, lines 19-24.

Claim 73 recites that the frequency-compensation feedback system comprises a pressure transducer. This is supported by the specification at page 8, line 4, which recites "pressure transducer 43."

Claim 74 recites that "the pressure transducer converts air pressure into an oscillating electrical signal." This is supported by the specification at page 8, lines 4-6, which offer further detail as to the operation of the pressure transducer.

Claim 75 recites that "the frequency-compensation feedback system provides a voltage level proportional to the oscillation frequency." This is supported by the specification at page 8, lines 9-11.

Claim 76 recites that "the frequency-compensation feedback system compares the oscillation frequency to a predetermined value by comparing voltages." This is supported by the specification at page 8, lines 14-16; the comparison is performed by the difference amplifier 46.

Claim 77 recites that "the frequency-compensation feedback system adjusts the oscillation frequency by changing the motor speed." This is supported by the specification at page 8, lines 19-20, describing the operation of the pulse-width modulator 60.

Claim 78 has the generator described as in claim 45, except the pressure-compensation feedback system element is replaced by a "wherein" clause reading: "wherein the generator maintains the positive pressure at a predetermined value irrespective of the repeated inhalation and expiration of the person." The support for the generator is as described for claim 45 above. The support for the clause "wherein the generator maintains the positive pressure at a predetermined value irrespective of the repeated inhalation and expiration of the person" is found at page 11, lines 3-11 of the specification.

Claim 79 adds a second "wherein" clause reading "wherein the generator dynamically adjusts and controls the positive pressure to allow repeated inhalation and expiration of the person." The support for this clause is found at page 10, lines 2-7 of this specification. The term "compensate," used in the specification at page 10, line 6, would be understood by one

of ordinary skill in the art as including dynamic adjustment and control. This is independent of the details of the dynamic adjustment and control or whether it is mechanical, electrical, or a combination thereof.

Claim 80 recites the control panel. Support for the control panel is found at page 5, lines 10-12, which refers to "the control panel 7" and to the ability of the user to select treatment parameters.

Claim 81 recites the reciprocating diaphragm and seal as in claim 40. Support for this claim is as in claim 40.

Claim 82 recites the shaft of the first motor, the mechanical connection of the shaft to the reciprocating diaphragm, and the displacement of a fixed volume of air by each cycle of the reciprocating diaphragm. These details are supported by the specification at page 7, lines 5-9.

Claim 83 recites "wherein the reciprocating diaphragm causes pressure changes inside the air chamber in comparison to ambient pressure and wherein a majority of the fixed volume of air is moved into and out of a bladder during each cycle." These features are recited at page 7, lines 5-18 of the specification.

Claim 84 recites that "the oscillating frequency is between about 5 Hz to about 25 Hz." This is supported by the specification at page 5, lines 13-14.

Claim 85 recites a vest comprising a bladder. This arrangement is supported by the specification at page 2, lines 24-25.

Claim 86 recites "at least one tube operably connecting the bladder to the generator." The recitation of the tube is supported by the specification at page 2, line 26.

Claim 87 recites that the bladder causes oscillatory compression of the torso of the person. This is supported by the specification at page 4, line 29.

Claim 88 recites that mucus from lungs of the person is loosened and expulsion of the mucus is assisted. This function of the device is supported by the specification at page 4, lines 30-31.

Claim 89, describing initiation of treatment and the lack of further interaction between the apparatus and the patient, is supported by the specification at page 11, line 28, to page 12, line 2.

Claim 90 recites various features recited in claims 78-89 and supported by the specification as for those claims, together with the limitation that the reciprocating diaphragm causes pressure changes inside the air chamber in comparison to ambient pressure. This limitation is supported by the specification at page 7 lines 10-12.

Claim 91 is substantially equivalent to claim 78, except that the frequency-compensation feedback system element is replaced with "wherein the oscillatory pressure has an oscillation frequency, wherein the generator controls the oscillation frequency." The control of the oscillation frequency by the generator in the operation of the device is described at page 5, lines 4-5.

Claim 92 recites a frequency-compensation feedback system operably connected with the generator to maintain the oscillation frequency at the predetermined value. The operable connection between the frequency-compensation feedback system and the generator is shown in Figure 3. The maintenance of the oscillation frequency at the predetermined value is supported by the specification at page 9, lines 17-19.

Claim 93 recites the maintenance of the oscillation frequency at a predetermined value by the generator. The maintenance of the oscillation frequency by the generator in the operation of the device is described at page 5, lines 4-5 and page 9, lines 17-19.

Claim 94 recites the detection of the oscillation frequency, the comparison of the oscillation frequency to the predetermined value, and the adjustment of the oscillation frequency to the predetermined value. This is supported by the specification at page 8, lines 9-21.

Claim 95 recites the detection of the oscillatory pressure. This is supported by the specification at page 8, lines 3-9; the pressure transducer 43 detects the oscillatory pressure.

Claim 96 recites the detection of the motor speed. This is supported by the specification at page 7, lines 19-24.

Claim 97 recites the changing of the motor speed. This is again supported by the specification at page 7, lines 19-24 and page 8, line 20.

Claim 98 recites that the generator maintains the oscillation frequency at a predetermined value irrespective of the repeated inhalation and expiration of the person. This is supported by the specification at page 9, lines 17-19.

Claim 99 recites that the first motor maintains a constant speed irrespective of the repeated inhalation and expiration of the person. This is supported by the specification at page 9, lines 17-19.

Claim 100, dependent on claim 91, further recites the "wherein" clauses of claim 90 and is supported as is described above for claim 90.

Claims 101-119 are method claims.

The method of claim 101 is substantially the method of use of the device of claim 91.

The method of claim 102 further recites dynamic adjustment of the oscillation frequency. This is supported by the specification at page 8, lines 10-21.

The methods of claim 103-104 further recite dynamic adjustment of the positive pressure. This is supported by the specification at page 10, lines 12-28.

The method of claim 105 further recites detecting and adjusting the oscillation frequency. This is supported by the specification at page 8, lines 9-21.

The method of claim 106 further recites detection of the oscillatory air pressure. This is supported by the specification at page 8, lines 3-5.

The method of claim 107 further recites detection and adjustment of the positive air pressure. This is supported by the specification at page 10, lines 12-19.

The methods of claim 108-110 further recite selective adjustment of the first and second predetermined values, as indicated by the specification at page 5, lines 12-16.

The method of claim 110 further recites the use of the control panel. This is supported by the specification at page 5, lines 10-17.

The method of claim 111 further recites a method for displacement of a fixed volume of air each cycle. This is supported by the specification at page 7, lines 5-9.

The method of claim 112 further recites changing an air pressure inside the air chamber in comparison to ambient pressure, and moving a majority of the fixed volume of air into and out of the bladder during each cycle. This is supported by the specification at page 7, lines 10-15.

The method of claim 113 recites that the change of air pressure is less than or equal to about 1 psi. This is supported by the specification at page 7, lines 11-12.

The method of claim 114 further recites that the oscillation frequency is maintained at a predetermined value between about 5 Hz to about 25 Hz. This is supported by the specification at page 5, lines 13-14.

The method of claim 115 further recites providing a vest comprising a bladder, placing the vest around a torso of the person; and positioning the bladder and the vest such that expansions and contractions of the bladder occur generally adjacent to the torso of the person. This is supported by the specification at page 4, lines 22-28.

The method of claim 116 further recites causing oscillatory compression of the torso of the person with the bladder. This is supported by the specification at page 4, lines 28-29.

The method of claim 117 further recites loosening and assisting the expulsion of mucus from a lung of the person. This is supported by the specification at page 4, lines 30-31.

The method of claim 118 further recites placing a vest around a torso of the person and selecting operating parameters on a control panel without further interaction required by the person with the generator. This is supported by the specification at page 11, line 28 to page 12, line 2.

The method of claim 119 further recites an oscillatory air flow generator and a positive air flow generator, the positive air flow generator operably connected with the oscillatory air flow generator. This is supported by the specification at page 6, lines 5-8; the operable connection of the positive air flow generator and the oscillatory air flow generator is shown in Figure 3.

In general, claims 13-119 are added to address aspects of the invention that were not previously claimed, although described in detail in the specification and part of what the inventors considered to be their invention.

Claim 13 is substantially equivalent to issued claim 1 except that the term "continuous air flow generator" is replaced by positive air flow generator, and the description of the second feedback and control means, which controls the positive air flow generator, is modified accordingly.

Claim 14 is similar to claim 13, except in the description of the second feedback and control means. In claim 14, the second feedback and control means is described as "dynamically adjusting an output pressure of the positive air flow generator," while in claim 13, the second feedback and control means is described as "continuously varying an output pressure of the positive air flow generator."

Claim 17 is similar to claim 14, except that the second feedback and control means is "for maintaining a positive pressure at a predetermined value." There is no reference to "dynamically adjusting."

Claim 20 eliminates the "means" language and refers to "a frequency-compensation feedback system operably connected with the oscillatory air flow generator" and a "pressure-compensation feedback system operably connected with the positive air flow generator."

Dependent claims 21-31 add features related to the pressure-compensation feedback system.

Claim 32 removes the rod and crankshaft from claim 20. The specification makes it clear that the rod and crankshaft are details represent a way of carrying out the function of the device.

Dependent claims 34-43 add features related to the motor-diaphragm connection and seal.

Claim 44 adds a generic term "generator" replacing both the "oscillatory air generator" and "positive air generator." The generator is recited as providing both a "positive pressure" and an "oscillatory pressure."

Claim 45 is similar to claim 44, except that it refers to the "generator" comprising "an oscillatory air flow generator" and "a positive air flow generator."

Dependent claims 46-53 add further features from the specification.

Dependent claims 54-69 add features related to the pressure-compensation feedback system.

Dependent claims 70-77 add features related to the frequency-compensation feedback system.

Claim 78 broadens the description of the generator in accord with the specification while maintaining the recitation of the frequency-compensation feedback system.

Claims 79-89 are dependent claims that add various features of the device.

Claim 90 is a detailed claim reciting various features of the device.

Claim 91 is an independent claim that is similar to claim 78 but replaces the frequency-compensation feedback system element with a wherein clause.

Claims 92-100 are dependent claims that add various features of the device of claim 91.

As indicated above, claims 101-119 are method claims that highlight the modes of operation and features of the device, including the use of the control panel, the incorporation of the device into a vest to be placed over the torso of a user, and the operation of the device without further interaction with the user once the desired oscillatory frequency and peak pressure are set.

Examination of the claims pending in the above-identified reissue application and allowance of these claims are respectfully requested.

Respectfully submitted,

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